Examination:	May-June 2016	**Date:**	12/5/2016
Branch:	Computer Engineering	**Subject:**	CN
Class/SEM:	BE/VIII	**Paper Code:**	622101

Examination:	May-June 2016	**Date:**	12/5/2016
Branch:	Computer Engineering	**Subject:**	DF
Class/SEM:	BE/VIII	**Paper Code:**	725000

Examination:	May-June 2016	**Date:**	13-5-16
Branch:	Computer Engineering	**Subject:**	DWM
Class/SEM:	BE/VIII	**Paper Code:**	733600

Examination:	May-June 2016	**Date:**	24-5-16
Branch:	Computer Engineering	**Subject:**	MSD
Class/SEM:	BE/VIII	**Paper Code:**	622502

Examination:	May-June 2016	**Date:**	24-5-16
Branch:	Computer Engineering	**Subject:**	HMI
Class/SEM:	BE/VIII	**Paper Code:**	724102

Examination:	May-June 2016	**Date:**	30-5-16
Branch:	Computer Engineering	**Subject:**	DC
Class/SEM:	BE/VIII	**Paper Code:**	622600

Examination:	May-June 2016	**Date:**	30-5-16
Branch:	Computer Engineering	**Subject:**	PDS
Class/SEM:	BE/VIII	**Paper Code:**	735400

Sub:-CV

Q.P. Code : 622101

(3 Hours)

[Total Marks : 100

N.B. : (1) Question No. 1 is compulsory.
(2) Answer any **Four** questions from remaining six questions.
(3) Draw the **neat** diagrams wherever **necessary.**

1. Explain in brief :-

   (a) Preprocessing is a must for computer vision applications   20
   (b) Stages of Computer Vision
   (c) Hierarchical Image Matching
   (d) Photogrammetry from 2D to 3D

2. (a) Explain the motion based segmentation technique and its use in Computer   10
       Vision.
   (b) Explain Moments as boundary and region descriptors.

                                                                                   10

3. (a) Explain the consistent Labeling problem and how it is solved.   10
   (b) Explain extremal points as Region properties. For a tilted rectangle with an   10
       angular orientation of 45degrees and vertices { (r1,c1), (r2,c2),(r3,c3),(r4,c4)}
       determine the orientation, length and width of the rectangle as properties.

4. (a) Explain binary and gray scale erosion operations.
   (b) Explain the use of line fitting algorithm and a method to fit the line.   10
                                                                                    10

5. (a) Explain classical algorithm for Connected Component Labeling with an   10
       example.
   (b) List the different boundary descriptors and explain the Shape number in detail   10
       with an example.

6 (a) Explain the need for thresholding. Explain a thresholding method for an image   10
       that does not have a bimodal histogram.
   (b) Explain Models database organization for matching.   10

7. (a) Explain the matching techniques used in computer vision. Explain any one   10
       method in detail.
   (b) Explain Control strategies for knowledge based vision.   10

_____

Sub:- DF

Q.P.Code : 725000

(3 Hours)

Total Marks: 80

N.B.: (1) Question No.1 is compulsory.

(2) Attempt any three questions from the remaining five questions.

(3) Make suitable assumptions wherever necessary but justify your assumptions.

1. (a) What is Cyber Crime? How do we classify Cyber Crimes? 05

   (b) What is some of the volatile information you would retrieve from a computer system before powering it off? 05

   (c) What is Evidence? Explain the types of Evidence. 05

   (d) What is DOS attack? How to achieve recovery from DOS attack? 05

2. (a) What is Digital Forensics? What are the phases of Digital Forensics process? 10

   (b) Define Forensic Duplicate? How you will create Forensic Duplicate of a hard drive. 10

3. (a) Briefly explain the process of collecting the volatile data in digital forensics. 10

   (b) What are the steps involved in computer evidence handling? Explain in detail. 10

4. (a) What are the tools used in Network forensics. 10

   (b) Discuss the techniques of tracing an e-mail message. 10

5. (a) Explain how law enforcement is done in computer forensics. 10

   (b) Worksource Private Limited is a business process outsourcing (BPO) outfit handling business process outsourcing for various clients in North America and Europe. The employees of Worksource become privy to confidential customer information during the course of their work. The nature of this information ranges from medical records of individuals to financial data of companies. The unprocessed data is transmitted from the client's location to Worksource offices in Gurgaon, Pune and Hyderabad through the Internet using VPN (Virtual Private Network) connections on broadband. Worksource allows clients to transfer information via dedicated FTP servers on the Internet, which can then be accessed and processed by its employees. Worksource, through its website, worksource.com allows its clients to log in and view billing and other information specific to them. Access to this information is restricted through the usual user name - password combination found on most websites. 10

   Looking at the above scenario, discuss the threats Workforce faces to its information and suggest controls which it may put in place to secure its information from such threats.

5. Write a short note on 20

   (1) NTFS Disk

   (2) Windows Registry

Note: 1. Question No.1 is compulsory
2. Attempt any **Three** questions out of remaining questions
3. Assume suitable data wherever necessary and state them clearly

Q1 a) For a Super market chain, consider the following dimensions namely product, store, [10] time and promotion. The schema contains a central fact table for sales.
  i. Design star schema for the above application.
  ii. Calculate the maximum number of base fact table records for warehouse with the following values given below:
  • Time period – 5 years
  • Store – 300 stores reporting daily sales
  • Product – 40,000 products in each store (about 4000 sell in each store daily)

  b) Discuss:
  i. The steps in KDD process [10]
  ii. The architecture of a typical DM system

Q2 a) We would like to view sales data of a company with respect to three dimensions namely [10] Location, Item and Time. Represent the sales data in the form of a 3-D data cube for the above and Perform Roll up, Drill down, Slice and Dice OLAP operations on the above data cube and Illustrate.

  b) A simple example from the stock market involving only discrete ranges has profit as [10] categorical attribute, with values {Up, Down} and the training data set is given below.

Age	Competition	Type	Profit
Old	Yes	Software	Down
Old	No	Software	Down
Old	No	Hardware	Down
Mid	Yes	Software	Down
Mid	Yes	Hardware	Down
Mid	No	Hardware	Up
Mid	No	Software	Up
New	Yes	Software	Up
New	No	Hardware	Up
New	No	Software	Up

Apply decision tree algorithm and show the generated rules.

Q3 a) Illustrate the architecture of a typical DW system. Differentiate DW and Data Mart. [10]

  b) Discuss different steps involved in Data Preprocessing. [10]

Q4 a) Discuss various OLAP Models. [10]

  b) Explain K-Means clustering algorithm? Apply K-Means algorithms for the following [10] data set with two clusters. Data Set = {1, 2, 6, 7, 8, 10, 15, 17, 20}

TURN OVER

Q5 a) Describe the steps of ETL process.

b) Discuss Association Rule Mining and Apriori Algorithm. Apply AR Mining to find all frequent item sets and association rules for the following dataset:

Minimum Support Count = 2

Minimum Confidence = 70%

Transaction ID	Items
100	1, 2, 5
200	2, 4
300	2, 3
400	1, 2, 4
500	1, 3
600	1, 3
700	1, 3, 2, 5
800	1, 3
900	1, 2, 3

Q6 Write Short notes on any four of the following:

   i.   Updates to Dimension tables

   ii.   Metrics for Evaluating Classifier Performance

   iii.   FP tree

   iv.   Multilevel & Multidimensional Association Rule

   v.   Operational Vs. Decision Support System

(3 Hours)   Total Marks : 100

N.B.: (1) Question No.01 is compulsory

(2) Attempt any Four Questions from the remaining Six questions

(3) Assume Suitable Data wherever required

Q.01 (a) What is Multimedia? Draw and Explain workstation based architecture for multimedia systems   10

(b) Explain JPEG compression in detail.   10

Q.02 (a) Explain in detail MIDI communication Protocol.   10

(b) Explain CCITT Group 3 1D, CCITT Group 3 2D & CCITT Group 4 2D Compression Schemes.   10

Q.03 (a) Explain Multimedia System Design Steps.   10

(b) What is an Authoring System? Explain different types of authoring system.   10

Q.04 (a) Draw and explain Level 0 through Level 5 of RAID functionalities.   10

(b) Explain MPEG-1 Compression in detail.   10

Q.05 (a) Explain various Multimedia applications.   10

(b) What are the components of Distributed multimedia System?   10

Q.06 (a) Explain the working of image scanner & hence explain reasons for use of CCD by these scanners 10

(b) Explain different scheduling & Policing strategies in Multimedia Networking.   10

Q.07 Describe the following in detail. (Any two)   20

(a) Virtual Reality.

(b) Multimedia Animation.

(c) ADPCM in Audio Compression.

(3 Hours)   [Total Marks : 80

N.B. : (1) Q 1 is Compulsory
     (2) Solve any 3 from remaining Questions
     (3 Please specify your answers with neat sketches and Example wherever necessary
     (4) Assume any data if not specified

1. Solve any **five** of the following.   20
    (a) What do you mean by response time?
    (b) What do you mean by direct manipulation and indirect manipulation
    (c) Discuss issues related to Long Term Memory and short Term Memory.
    (d) What do you mean by keyboard accelerators?
    (e) Explain importance of Text Messages with respect to communication with user.
    (f) What are the three levels of processing? Explain

2 (A) Give Brief description on GUI versus Web Page.   10
  (B) In the state of Maharashtra, Rationing Department want to provide self-   10
    help portal for its customers. The portal consists of Information about
    basic need supplies, Online application for ration cards, Schemes for
    Low income groups, Adding a name of family members, deletion of
    name, Complaints and other facilities. Being a Subject Matter Expert
    (SME) provide the detailed analysis and for the same provide the
    Interface that will be used by people in all Districts of Maharashtra

3. (A) What do you mean by Qualitative and Quantitative Research? State   10
    various interview technics?
  (B) Provide suitable Analysis and Interface Design for State Road Transport 10
    corporations Information KIOSK that will be installed on major Bus
    stands of Indian state and it will have Local National and International
    Language (English) consider Hindi or Marathi as a local Language and
    provide detailed analysis.

[TURNOVER

4. (A) Provide all factors of Interface design? Provide innovative web application by integrating the technologies that are used in Interface design. **10**

   (B) Provide a systematic design analysis for Municipal Corporation's Mobile App; that provides information about the wards, their ward office, corporators in the ward, Schools Hospitals in the ward and other information of the Municipal Office, your analysis should consist of all necessary interface guidelines. **10**

5. (A) What do you mean by persona? Mention steps in constructing persona **10**

   (B) What are various methodologies adopted for Feedback and guidance? Consider multimedia, File Down load and Software Installation and state how we can create a dialog with user to communicate the Time factor for each one. **10**

6. Write Short Notes on.ANY **FOUR**
   (a) Human Centric Design **20**
   (b) Designs for accommodating Users
   (c) Logo Design
   (d) Menus in HMI
   (e) Graphics Icons and Images
   (f) Windows

_____

(3 Hours) | Total Marks: 100

N.B. : (1) Question 1 is compulsory.
    (2) Attempt any 4 questions out of the rest
    (3) **Figures** to the right indicate **full** marks.
    (4) All Question carry **equal** marks.

1. (a) Compare NOS with DOS and middleware.   5
   (b) Compare Multi Computer Systems with Multi Processor systems?   5
   (c) Explain various forms of Message - Oriented Communication models?   5
   (d) Draw and explain the steps in RPC model of communication.   5

2. (a) Explain the need for process migration. what is the role of resource to process and process to resource binding in process migration.   10
   (b) Explain architecture of DNS and also Name Resolution   10

3. (a) Explain group communication .What is Totally Ordered Multicasting.   10
   (b) Explain Distributed algorithm for Mutual Exclusion. What are its advantages/disadvantages over Centralized algorithms?   10

4. (a) What are the issues to be handled while designing Distributed Shared Memory.   10
   (b) Discuss any two algorithms to detect Distributed Deadlocks.   10

5. (a) Compare load balancing to task assignment schemes.   10
   (b) Explain the difference between Data Centric and Client Centric Consistency Models. Explain one model of each.   10

6. (a) What are the desirable conditions of a distributed file system?   10
   (b) Explain how Distributed Transaction Management is achieved. Explain advantages of 3PC over 2PC   10

7. Write short notes on: (any 2)   20
   a) Cache Consistency
   b) CODA File Systems
   c) Christian and Berkeley Algorithm for Clock Synchronization
   d) Lightweight and Callback RPC

P.D.S.

30/05/2016

Sub: PDC

May 16

O.P. Code : 736400

(3 Hours)

[Total Marks : 80]

N.B. : (1) Question No. 1 is Compulsory
(2) Attempt any three questions out of remaining five questions.
(3) Assume suitable data wherever required but justify the same.
(4) Assumption made should be clearly stated.

1. (a) Explain Data Flow computers with example.   5
   (b) What is the basic task of scheduler? Define i) Latency, ii) Initiation Rate, iii) Stage Utilization and iv) Forbidden Latency.   5
   (c) What are the different models of middleware?   5
   (d) What are the issues in designing a distributed system?   5

2. (a) A machine is run on many applications and the instruction mix is collected. Loads/Store are 10%, Integer add/sub 15%, FP add/sub 50%, FP multiply divide 5% and others 5% and branches 15%. The clock cycles consumed by these instructions are: Loads 2, Integer add/sub 1, FP add/sub 5, FP multiply/divide 20, others 1. Find which component of the architecture requires enhancement first. After incorporating the enhancement which makes clock cycles requirements as 2. Find the overall Speedup?   10

   (b) What is SIMD Architecture? Explain with example SIMD Mesh Connected Architecture.   10

3. (a) What is an interlock? Explain the following three different classes of hazards :   10
       (i) Control Hazards
       (ii) Resource hazards
       (iii) Operand hazards

   (b) Explain a pipelined multiplication using Digit Products of Fixed Point Multiplication Pipeline.   10

4. (a) Explain the difference between Data Centric and Client Centric Consistency Models. Explain one model of each.   10
   (b) Explain stream oriented communication with suitable example   10

[TURN OVER

5. (a) Explain the distributed algorithms for Mutual Exclusion? What are the advantages and disadvantages of it over centralized algorithms?

(b) Write a Suzuki-Kasami's Broadcast Algorithm. Explain with example.

6. (a) Compare Load sharing to task assignment and Load balancing strategies for scheduling processes in a distributed system.

(b) What are the desirable features of good distributed file systems? Explain file sharing semantic of it.